

**REMARKS**

Claims 1-42 are pending in the present application. Reconsideration of the claims is respectfully requested.

**I. 35 U.S.C. § 102, Anticipation**

The Examiner rejected Claims 1-5, 7-13, 15-19, 21-27, 29-33 and 35-41 under 35 U.S.C. § 102 as being anticipated by Pettey et al (US Patent No 6,594,712). This rejection is respectfully traversed.

The invention of Claim 1 is directed to a method for performing an I/O transaction in a data processing system, in which (1) a memory address of a request is sent over a network to an adapter, *via a first remote direct memory access*; (2) the request is retrieved from the host, under the control of the adapter, *via a second remote direct memory access*; and (3) responsive to the request, *a remote direct memory access transfer* is initiated with the host, under the control of the adapter.

There are two primary issues with respect to the rejection of Claim 1. First, the claimed 'address' is different from Pettey's teaching of an address. Second, the handshake/protocol as claimed is different from Pettey's data exchange. These differences will now be described in detail.

Per Claim 1, the 'address' is stated to be the address of the request (i.e. the address of the command that is to be executed). This address (of the request) is sent to an adapter, such that the request can be retrieved from the host under control of the adapter. Per Pettey, the 'virtual address' that is being cited by the Examiner in rejecting Claim 1 is the address of where the data is to be read/written (i.e. it is a *data* address (Pettey column 1, lines 40-43), and not the address of a *command*, as claimed). It is thus urged that the cited reference does not teach the claimed steps of "sending a memory address of a request to an adapter" (emphasis added) and "retrieving the request from the host, under the control of the adapter". For a prior art reference to anticipate in terms of 35 U.S.C. 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). As every

element of the claimed invention is not identically shown in a single reference, it is urged that Claim 1 has been erroneously rejected under 35 U.S.C. § 102.

Further regarding Claim 1, another issue pertains to the specific handshake/protocol recited therein, and in particular the use of three distinct RDMA operations to perform the overall I/O transaction, as expressly recited in Claim 1. Claim 1 states:

A method, operable in a data processing system having a host, for performing an input/output transaction, comprising:  
sending a memory address of a request to an adapter, via a **first remote direct memory access** over a network;  
retrieving the request from the host, under the control of the adapter, via a **second remote direct memory access** over the network;  
and  
initiating, under the control of the adapter, a **remote direct memory access transfer** with the host, responsive to the request.

As can be seen by the bolded text above, three distinct RDMA operations are used to perform the overall I/O transaction – one for sending a memory address of a request to an adapter, another for retrieving the request from the host under control of the adapter, and another for the actual host transfer. In contrast, Pettey's I/O read transaction is shown in Figure 15 and described at Col. 15, lines 5-16, and Pettey's I/O write transaction is shown in Figure 16 and described at Col. 16, lines 17-31. For a Pettey read operation (Fig. 15), a send packet is transmitted from the host to the adapter which specifies an I/O read command. This is different from Claim 1 for at least two reasons. First, this send packet is not sent using RDMA (Pettey column 12, line 58 – column 13, line 17). Secondly, this command is sent *directly* from the host to the adapter, whereas Claim 1 recites the sending of *an address of the command* to the adapter, and the adapter then retrieves the command designated by the address to access the host *using a second RDMA operation*. Similarly, for a Pettey write operation (Fig. 16), a send packet is transmitted from the host to the adapter which specifies an I/O write operation. This is different from Claim 1 for the same two reasons identified above regarding an I/O read operation. Restated, Claim 1 uses RDMA for both initiation/set-up of the data transfer as well as the transfer itself. Pettey only uses RDMA for the transfer itself. Thus, Claim 1

is further shown to not be anticipated by the cited reference, as every element recited therein is not identically shown in a single reference.

Applicants traverse the rejection of dependent Claims 2-5 for reasons given above with respect to Claim 1.

With respect to Claims 7 (and dependent Claims 8-13), 15 (and dependent Claims 16-19), 21 (and dependent Claims 22-27), 29 (and dependent Claims 30-33), and 35 (and dependent Claims 36-41), Applicants traverse the rejection of such claims for similar reasons to those given above with respect to Claim 1.

Therefore, the rejection of Claims 1-5, 7-13, 15-19, 21-27, 29-33 and 35-41 under 35 U.S.C. § 102 has been overcome.

## II. 35 U.S.C. § 103, Obviousness

The Examiner rejected Claims 6, 14, 20, 28, 34 and 42 under 35 U.S.C. § 103 as being unpatentable by Pettey et al (US Patent No 6,594,712) in view of Avery (US Patent No. 6,813,653). This rejection is respectfully traversed for reasons given above with respect to Claim 1.

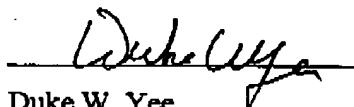
Therefore, the rejection of Claims 6, 14, 20, 28, 34 and 42 under 35 U.S.C. § 103 has been overcome.

**III. Conclusion**

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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